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REMARKS/ARGUMENTS

In the Office Action, the Examiner noted that claims 1-3, 5-7, 11-26, and 28-32 are pending in the application. The Examiner additionally stated that claims 1-3, 5-7, 11-26, and 28-32 are rejected. By this amendment, claims 13 and 28-29 have been cancelled and claims 1-3, 5-7, 11-12, 14-21, and 30 have been amended. Hence, claims 1-3, 5-7, 11-12, 14-26, and 30-32 are pending in the application.

Applicant hereby requests further examination and reconsideration of the application, in view of the foregoing amendments.

In the Specification

Applicant has amended the specification to secure a substantial correspondence between the claims amended herein and the remainder of the specification. No new matter is presented.

In the Claims

Rejections Under 35 U.S.C. §103(a)

The Examiner rejected claims 1-3, 5-7, 11-26, and 28-32 under 35 U.S.C. 103(a) as being unpatentable over Kalyan et al, U.S. Patent No. 6,826,538 (hereinafter, "Kalyan") in view of Ouimet et al., U.S. Patent No. 6,308,162 (hereinafter, "Ouimet") and Phillips et al., Pub No. US2002/0116348 (hereinafter, "Phillips"). Applicant respectfully traverses the Examiner's rejections.

With reference to claim 1, the Examiner stated that Kalyan et al, discloses a method wherein an interface enabling a user to determine optimum prices of products for sale, comprising:

- a scenario/results processor, configured to enable a user to prescribe an optimization scenario, and configured to present the optimum prices to said user, wherein the optimum prices are determined by execution of said optimization scenario, and wherein said optimum prices are determined based upon estimated product demand and calculated activity based costs, said scenario/results processor comprising (Col. 2, lines 46-67; Col. 3, lines 1-3; Col. 7, lines 53-63):

- an input/output processor, configured to acquire data corresponding to said optimization scenario from said user, and configured to distribute optimization results to said user (Col. 2, lines 56-59; Col. 3, lines 32-38; Col. 7, lines 53-63, also see Figure 3); and
- a scenario controller, coupled to said input/output processor, configured to control acquisition of said data and distribution of said optimization results in accordance with a price optimization procedure, wherein said price optimization procedure is configured to relax constraints of lower priority conflicting rules to render said optimization scenario feasible (Col. 2, lines 56-59; Col. 4, lines 36-47; Col. 19, lines 10-27; Col, 20, lines 1-8).

The Examiner conceded that Kalyan fails to disclose a method wherein said input/output processor comprises:

- a template controller, configured to provide first price optimization templates and second price optimization templates, wherein said price optimization templates are presented to said user to allow for prescription of said optimization scenario, and for distribution of said optimization results; and
- a command interpreter, configured to extract commands from said first price optimization templates executed by said user, and configured to populate said second price optimization templates according to result data provided for presentation to said user.

The Examiner argued that Ouimet et al., however, teaches presenting the user with menus that acquire data and distribute results to the user based on the acquired data (Col. 3, lines 27-67; Col. 4, lines 1-1 5, 43-64) and, therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Kalyan et al. and include menus that acquire and distribute data to and from the user as taught by Ouimet et al. because it greatly improves the efficiency and convenience of the system by providing the user with a system that is user friendly.

The Examiner also pointed out that Kalyan et al. fails to disclose a method wherein said first price optimization template comprise: a plurality of new scenario templates, configured to enable said user to prescribe scenario parameters corresponding to said optimization scenario, but that Ouimet et al. teaches allowing a user to define scenario parameters (Col. 4, lines 42-55) and, therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Kalyan et al. and include a menu wherein a user is able to define scenario parameters as taught by Ouimet et al. because it greatly improves the convenience of the system by providing the user with convenience and a system that is user-friendly.

The Examiner furthermore stipulated that Kalyan et al. fails to disclose:

- providing a products template, for specifying the products for sale for which the optimum prices are to be determined, wherein the products for sale may span more than one of the plurality of demand groups; and
- providing a category template, for specifying a product category for price optimization, wherein the product category comprises a plurality of demand groups, each of said plurality of demand groups configured to categorize a set of highly correlated products.

The Examiner noted that Ouimet et al., however, teaches a menu interface for inputting data and that Ouimet et al. also teaches providing a store manager with optimum prices for which to items that are to be sold (Col. 4, lines 57-64). The Examiner thus concluded that it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Kalyan et al. and include inputting the items whose prices are to be optimized.

The Examiner stated that Phillips et al. teaches categorizing products into categories and then optimizing the prices for those products (Para. 5, 13,34 and 35) and, therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Kalyan et al. and include grouping products into categories. The Examiner noted that Phillips et al. provides motivation for grouping

products into categories because the optimization model becomes easier to manage due to fewer sets of data (Para. 34).

The Examiner further noted that Kalyan et al. fails to disclose a method wherein said plurality of new scenario templates further comprises: a locations template, for specifying a plurality of store groups for which the optimum prices are to be determined, wherein, when determining the optimum prices, the apparatus employs portions of said data that correspond to said plurality of store groups. The Examiner pointed out that Ouimet et al., however, teaches determining the optimum prices for one store (Col. 10, lines 34-44) and, therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Kalyan et al. and include specifying for which store locations to determine the optimum prices as taught by Ouimet et al. because a user would want to optimize the prices for more than one store in order to maximize profits throughout all store locations.

Claim 1, as amended herein, is repeated below for ease of reference.

1. An interface enabling a user to determine optimum prices of products for sale, comprising:

a scenario/results processor, configured to enable a user to prescribe an optimization scenario, and configured to present the optimum prices to said user, wherein the optimum prices are determined by execution of said optimization scenario, and wherein said optimum prices are determined based upon estimated product demand and calculated activity based costs, said scenario/results processor comprising:

an input/output processor, configured to acquire data corresponding to said optimization scenario from said user, and configured to distribute optimization results to said user wherein said input/output processor comprises:

a template controller, configured to provide first price optimization templates and second price optimization templates, wherein said first price optimization templates are presented to said user to allow for prescription of said optimization scenario, and for distribution of said optimization results, and wherein said first price optimization templates comprise:

a plurality of new scenario templates, configured to enable said user to prescribe scenario parameters corresponding to said optimization scenario, wherein said plurality of new scenario templates comprises:

a category template, for specifying a product category for price optimization, said product category comprising:

a plurality of demand groups, each of said plurality of demand groups configured to categorize a set of highly correlated products;

a products template, for specifying the products for sale, wherein the products for sale span more than one of said plurality of demand groups; and

an at-large rules template, for specifying rules to govern determination of the optimum prices, said rules comprising:

maximum allowable price swing for each of the products for sale; and

maximum allowable swing for average price of each demand group within said plurality of demand groups; and

a command interpreter; configured to extract commands from said first price optimization templates executed by said user, and configured to populate said second price optimization templates according to result data provided for presentation to said user; and

a scenario controller, coupled to said input/output processor, configured to control acquisition of said data and distribution of said optimization results in accordance with a price optimization procedure, wherein said price optimization procedure is configured to relax constraints of lower priority conflicting rules to render said optimization scenario feasible.

In combination, claim 1 recites an interface enabling a user to determine optimum prices of products for sale. The interface has a scenario/results processor to enable a user to prescribe an optimization scenario, and configured to present the optimum prices. The optimum prices are determined by execution of the optimization scenario, and in particular, the optimum prices are determined based upon estimated on both product demand and calculated activity based costs. In addition, the scenario/results processor has an input/output processor for acquiring data, and for distributing optimization results. The input/output processor includes a template controller that is configured to provide first and second price optimization templates. The first price optimization templates are presented to the user for prescription of the optimization scenario and for distribution of said optimization results. The first price optimization templates include a number of new scenario templates, including a category template, for specifying a product category for price optimization. The product category includes a plurality of demand groups, each of which categorizes a set of highly correlated products. The new scenario templates also include products template, for specifying the products for sale, where the products for

sale span more than one of the plurality of demand groups. The new scenario templates further include an at-large rules template, for specifying rules to govern determination of the optimum prices. The rules include maximum allowable price swing for each of the products for sale and maximum allowable swing for average price of each demand group within the plurality of demand groups. The input/output processor also has a command interpreter that extracts commands from the first price optimization templates, and populates the second price optimization templates according to result data provided for presentation to the user. The scenario/results processor also has a scenario controller that is coupled to the input/output processor. The scenario controller controls acquisition of the data and distribution of the optimization results in accordance with a price optimization procedure, wherein the price optimization procedure is configured to relax constraints of lower priority conflicting rules to render said optimization scenario feasible.

Applicant respectfully disagrees with the Examiner's rejection of claim 1 for the following reasons. First, Kalyan does not disclose an at-large rules template, for specifying rules to govern determination of the optimum prices, said rules comprising:

- maximum allowable price swing for each of the products for sale; and
- maximum allowable swing for average price of each demand group within said plurality of demand groups.

In rejection of claim 13, cancelled by this communication, the Examiner argues that Kalyan discloses the above noted limitations (col. 3, lines 12-13, lines 60-67; col. 14, lines 1-17. The noted citations are repeated below for ease of reference:

Col. 3, lines 12-13:

M number of standard products being offered for sale
P_k the offered price for the k^{th} product, k=1, 2, . . . M

Col. 3, lines 60-67:

Optimal prices for components are a function of controlling the sale of the product. FCFS is one type of control (or no-control). Another control is setting explicit allocations for various products, but this may be impractical when there are a large number of products and not all of them are predefined. The following control strategy is suitable for use with the present invention. If V_i is the value of i^{th} component, then:

Col. 14, lines 1-17

manufacturer has other suppliers, the complete upstream supply chain may have to be considered and its reliability factored in depending upon the relationship between the two. The downstream chain may also be important. If there are multiple items and capacity units (say more than one work center or materials) the VM model needs to be generalized. Once the multiple items have been mapped into multiple products, the problem is conceptually similar to one item that has been productized. The multiple resources can be handled by arriving at an AP for each resource (constrained or not—in which case it could be small or 0). If the sum of the utilized resources' AP is less than the value being obtained then the product can be made available.

It should also be noted that the PC relies on the availability of unconstrained demand, i.e., demand that exists for a product regardless of whether it will be available or not. In reality the recorded history will only have actual realized demand (or constrained demand). This can place additional burdens on the forecasting algorithms since they use the histories to forecast.

Respectfully, Applicant fails to find the limitations recited in claim 1 in any of the above three citations.

Furthermore, the at-large rules which the user specifies, including specification of maximum allowable price swing for each of the products for sale, and maximum allowable swing for average price of each demand group within a plurality of demand groups, is heretofore unknown in the art of price optimization. This is because, historically, price elasticity optimizations are performed *one retailer at a time* and thus, when a maximum price swing, for example, is set, the maximum price swing *is not derived from price elasticity.* The state of the art derives price swing limits from other sources such as competitor prices and cost of a product itself. The invention of claim 1, in contrast utilizes these rules when performing an optimization.

In addition, Applicant disagrees with the Examiner's assertion that Kalyan discloses prioritization of optimization rules where a price optimization procedure is configured to relax constraints of lower priority conflicting rules to render the optimization scenario feasible. In a response to Applicant's arguments,. The Examiner notes that Kalyan et al. discloses a truncated form of the distribution that can be used to disallow negative values, which would allow the optimization scenario to become feasible (Col. 4, lines 45-47). In response, Applicant respectfully asserts that using a truncated form of the distribution to disallow negative values is not equivalent to performing a price optimization where prioritized optimization rules are progressively relaxed to render the optimization scenario feasible. More specifically, Kalyan does not disclose a technique for entering rules/constraints for an optimization. Accordingly, Kalyan does not disclose or provide motivation that would lead one skilled to utilize a technique for prioritizing rules/constraints which have been entered. Consequently, it does not follow that Kalyan would relax constraints of lower priority conflicting rules, *which have neither been specified nor prioritized,* to render the optimization scenario feasible.

For all of the above reasons, it is respectfully requested that the rejection of claim 1 be withdrawn

By this communication, claim 13 is cancelled, thereby rendering the rejection moot.

With regard to claims 2-3, 5-7, 11-12, and 14-19, these claims depend from claim 1 and add further limitation over that subject matter which has been argued above as being allowable over the cited references. Consequently, it is requested that the rejections of claims 2-3, 5-7, 11-12, and 14-19 be withdrawn.

In rejection of claim 20, the Examiner argues that Kalyan et al. discloses a method for providing an interface to an apparatus for optimizing the prices of products for sale, comprising:

- utilizing a computer-based scenario/results processor within an optimization server to present a sequence of data entry templates to a user, whereby the user specifies an optimization scenario, the optimization sewer optimizing the prices

according to modeled market demand chain costs for the products; said utilizing comprising (Col. 2, lines 46-67; Col. 3, lines 1-3, 32-38; Col. 7, lines 53-63):

- selectively limiting the number of prices that are optimized (Col. 3, lines 12- 13); and
- generating a plurality of optimization results templates and providing these templates to the user, wherein the optimum prices are presented (Col. 2, lines 56-59; Col. 7, lines 60-63).

The Examiner noted that Kalyan et al. fails to disclose:

- providing a products template, for specifying the products for sale for which the optimum prices are to be determined, wherein the products for sale may span more than one of the plurality of demand groups; and
- providing a category template, for specifying a product category for price optimization, wherein the product category comprises a plurality of demand groups, each of said plurality of demand groups configured to categorize a set of highly correlated products.

The Examiner asserted that Ouimet et al., however, teaches a menu interface for inputting data and that Ouimet further teaches providing a store manager with optimum prices for which to items that are to be sold (Col. 4, lines 57-64). The Examiner thus concluded that it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Kalyan et al. and include inputting the items whose prices are to be optimized.

The Examiner further noted that Phillips et al. teaches categorizing products into categories and then optimizing the prices for those products (Para. 5, 13,34 and 35) and, therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Kalyan et al. and include grouping products into categories, noting further that Phillips et al. provides motivation for grouping products into categories because the optimization model becomes easier to manage due to fewer sets of data (Para. 34).

Claim 20, as amended herein, is provided below for ease of reference:

20. A method for providing an interface to an apparatus for optimizing the prices of products for sale, comprising:

utilizing a computer-based scenario/results processor within an optimization server to present a sequence of data entry templates to a user, whereby the user specifies an optimization scenario, the optimization server optimizing the prices according to modeled market demand for the products and calculated demand chain costs for the products; said utilizing comprising:

first providing a category template, for specifying a product category for price optimization, wherein the product category comprises a plurality of demand groups;

second providing a products template, for specifying the products for sale for which the optimum prices are to be determined, wherein the products for sale span more than one of the plurality of demand groups;

third providing a time horizon template, for prescribing a time period for which the optimum prices are to be determined;

fourth providing a locations template, for prescribing a plurality of store groups for which the optimum prices are to be determined, wherein said prescribing directs said optimizing to utilize data corresponding to the plurality of said store groups when determining the optimum prices; and

fifth providing an at-large rules template, for specifying rules to govern determination of the optimum prices, wherein the rules specify maximum allowable price swing for each of the products for sale, and maximum allowable swing for the average price of each demand group within the plurality of demand groups;

sixth providing a configured rules template, for prioritizing the rules, wherein, if particular rules conflict, the optimization server optimizes the prices by progressively relaxing constraints prescribed by lower-priority rules;

selectively limiting the number of prices that are optimized; and

generating a plurality of optimization results templates and providing these templates to the user, wherein the optimum prices are presented.

In combination with other elements and limitations, claim 20 recites:

- fourth providing a locations template, for prescribing a plurality of store groups for which the optimum prices are to be determined, wherein said prescribing directs said optimizing to utilize data corresponding to the plurality of said store groups when determining the optimum prices;
- fifth providing an at-large rules template, for specifying rules to govern determination of the optimum prices, wherein the rules specify maximum allowable price swing for each of the products for sale, and maximum allowable swing for the average price of each demand group within the plurality of demand groups; and
- sixth providing a configured rules template, for prioritizing the rules, wherein, if particular rules conflict, the optimization server optimizes the prices by progressively relaxing constraints prescribed by lower-priority rules.

In rejection of claims 28 and 29, the Examiner argued that Kalyan et al. discloses all of the limitations in claim 20. and furthermore discloses a method wherein said utilizing further comprises:

- providing an at-large rules template, for specifying rules to govern determination of the optimum prices, wherein the rules specify maximum allowable price swing for each of the products for sale, and maximum allowable swing for the average price of each demand group within the plurality of the demand groups.

Applicant has searched Kalyan and fails to find any reference, suggestion, hint, or any word that would lead one skilled in the art to the above recited limitation.

The Examiner stated that Kalyan et al. fails to disclose:

- providing a locations template, for prescribing a plurality of store groups for which the optimum prices are to be determined, wherein said prescribing directs said employing to utilize data corresponding to the plurality of said store groups when determining the optimum prices.

The Examiner opined that Ouimet et al. teaches using data to determine optimal prices for stores in the same market to better optimize their own prices (Col. 10, lines 34-44) and therefore concluded that it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Kalyan et al. and include which stores to determine optimal prices as taught by Ouimet et al., noting that Ouimet et al. provides motivation by revealing that knowing prices of other stores in the market can enable a store to better optimize their own prices (Col. 10, lines 34-44).

Applicant respectfully disagrees and directs the Examiner's attention to substantially similar arguments offered above in traversal of the rejection of claim 1. To summarize, price elasticity optimizations are conventionally performed *one retailer at a time* and thus, when a maximum price swing, for example, is set, the maximum price swing *is not derived from price elasticity*. The state of the art derives price swing limits from other sources such as competitor prices and cost of a product itself. The invention of claim 20, in contrast includes providing a locations template, for prescribing a plurality of store groups for which the optimum prices are to be determined, wherein said prescribing directs said employing to utilize data corresponding to the plurality of said store groups when determining the optimum prices.

The Examiner further asserted that Kalyan discloses a method wherein said utilizing further comprises:

- providing a configured rules template, for prioritizing the rules, wherein, if particular rules conflict, the optimization sewer optimizes the prices by

progressively relaxing constraints prescribed by lower-priority rules (Col. 19, lines 10-27; Col. 20, lines 1-8).

The citations from Kalyan are repeated below for ease of reference:

Col. 19, lines 10-27:

> The objective function can be interpreted as maximizing the revenue from products 1, 2, 3 and 4. The price of each is 35, 25, 6 and 1 respectively. Equations (2) through (7) are constraints on the amount of each product that can be produced linked through linear equations. Equations (2) through (5) can be seen as resource constraints with each product consuming varying amount of each resource (and not all of them using each resource). The right hand side of each of these is the maximum available resource. Equations (6) and (7) are lower limits on products 2 and 4 although they can be called as resource constraints by defining artificial resources by multiplying both sides by −1 and reversing the inequality sign. For purposes of this discussion each of these equations are assumed to represent a unique resource. The primal and dual solutions of the two are also shown. A known economic principle is that if two products with a stochastic demand are using the same resource then each is allocated up to the point when the marginal values of

Col. 20, lines 1-8:

> both become equal. This principle extends to multi product case too. When the demands are deterministic naturally the product with the highest price (or margin if maximizing profit) is allocated up to the point there is no more product demand available. If any more resource is available, it is allocated to the next highest price product and so on. In this example demand can be assumedto be infinite for each but due to limited resources only so much of it can be satisfied.

Applicant respectfully asserts that neither of the two citations above teach providing a configured rules template, for prioritizing the rules, wherein, if particular rules conflict, the optimization sewer optimizes the prices by progressively relaxing constraints prescribed by lower-priority rules. Kalyan fails to teach entry of rules, or prioritization

thereof. Consequently, since Kalyan does not teach rule entry or prioritization, he cannot teach progressively relaxing constraints prescribed by lower-priority rules.

For the above noted reasons, Applicant respectfully requests that the rejection of claim 20 be withdrawn.

By this communication, claims 28-29 have been cancelled, thereby rendering the rejections moot.

With regard to claim 21-26 and 30-32, these claims depend from claim 20 and add further limitations over that subject matter which has been argued above as being allowable over the prior art. Accordingly, Applicant requests that the rejections of claims 21-26 and 30-32 be withdrawn.

CONCLUSIONS

In view of the arguments advance above, Applicant respectfully submits that claims 1-3, 5-7, 11-12, 14-26, and 30-32 are in condition for allowance. Reconsideration of the rejections is requested, and allowance of the claims is solicited.

Applicant earnestly requests that the Examiner contact the undersigned practitioner by telephone if the Examiner has any questions or suggestions concerning this amendment, the application, or allowance of any claims thereof.

I hereby certify under 37 CFR 1.8 that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office on the date of signature shown below.

Respectfully submitted,
HUFFMAN PATENT GROUP, LLC

/Richard K. Huffman/

By: _____

RICHARD K. HUFFMAN, P.E.
Registration No. 41,082
Tel: (719) 575-9998

08/23/2006

Date: _____